UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/845,606	04/28/2001	Amir Michaeli	63131	2587

26327	7590	05/16/2006

THE LAW OFFICE OF KIRK D. WILLIAMS
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EXAMINER
ZHEN, LI B

ART UNIT	PAPER NUMBER
2194	

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.		Applicant(s)	
Office Action Summary	09/845,606		MICHAELI ET AL.	
	Examiner		Art Unit	,
	Li B. Zhen		2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>28 February 2006</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 13-34* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 13-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-8 and 13-34 are pending in the application.

Response to Arguments

2.   Applicant's arguments filed 02/28/2006 have been fully considered but they are

not persuasive. In response to the Non-Final Office Action dated 10/31/2005, applicant

argues:

        (1) Neither Klausmeier et al. and Dagli teach distributing a plurality of items to a

plurality of sub-data structures in an order and receiving the items from the sub-data

structure in the order because Dagli teaches the queue data is retrieved from a

particular queue in the same order it was written to that same particular queue; not in

the same order that it is stored across multiple queues [p. 14, lines 12 – 16 and p. 15,

lines 3 – 7]; and

        (2) The combination of Klausmeier and Dagli would render Klausmeier unfit for

its intended purpose of switching packets, including forwarding higher priority packets

before lower priority packets even if they were received after the lower priority packets.

        In response to argument (1), examiner respectfully disagrees and notes that the

claims do not recite or suggest distributing data items across multiple queues in an

order and retrieving the data items from the multiple queues in the same order. The

claims broadly recite distributing items to the data structure to the plurality of sub-data

structures in an order and receiving items from the plurality of sub-data structures in the

order. The claims do not require the order to specify a sequence across multiple

queues; instead, the order as claimed can be specific to each sub-data structure.

Therefore, the claims are broad enough that the recited limitations can be interpreted as

an order for each sub-data structure.

        As to argument (2), examiner respectfully disagrees and notes that Klausmeier

does not disclose forwarding higher priority packets before lower priority packets even if

they were received after the lower priority packets. Klausmeier discloses a desire to

transmit data in the same order as they are received [cells within each connection must be transmitted in the same order as they are received with respect to each other; col. 1, lines 52 – 59 of Klausmeier].

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   **Claims 1-8 and 13-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,838,915 to Klausmeier in view of U.S. Patent Application Publication No. 2002/0126673 to Dagli et al. [hereinafter Dagli], both references cited in previous office action.**

5.   As to claims 1 and 13, Klausmeier teaches the invention substantially as claimed including a system for storing information in a data structure, the system comprising:

a distributor [624, Fig. 6];

one or more storage elements for storing a plurality of sub-data structures [622, Fig. 6 and col. 4, line 25]; and

a receiver [600, Fig. 6];

wherein the distributor distributes a plurality of items to be added to the data structure in an order; and the receiver receives the items from the data structure in the order [col. 1, lines 66-67 and col. 6, line 33].

6.   Although Klausmeier teaches the invention substantially as claimed, Klausmeier does not specifically teach distributing items to a plurality of sub-data structures in an order and receiving items from the sub-data structures in the order.

However, Dagli teaches distributing items to a plurality of sub-data structures in an order and receiving items from the sub-data structures in the order [retrieve the

queue data from memory 220 in the same order as it was received; p. 4, paragraph
0047].

7.   It would have been obvious to a person of ordinarily skill in the art at the time the
invention was made to modify the invention of Klausmeier to include the features of
distributing items to a plurality of sub-data structures in an order and receiving items
from the sub-data structures in the order as taught by Dagli because this tracks the
order of receipt and may establishes an order of transmission [p. 1, paragraph 0011 of
Dagli] and providing a shared memory in a system configured to store a known number
of data items, such as packets, the amount of memory required for system operation
may be reduced as compared to systems of the prior art [p. 1, paragraph 0009 of Dagli].

8.   As to claims 2 and 14, Klausmeier teaches that each of the sub-data structures
includes a linked-list data structure [col. 2, line 10].

9.   As to claims 3 and 15, Klausmeier teaches a storage for storing a head and a tail
of the linked list data structure of each of the plurality of sub-data structures [704 and
106, Fig. 7].

10.   As to claims 4 and 16, Klausmeier a memory for storing the plurality of sub-data
structures [622, Fig. 7].

11.   As to claims 5 and 17, Klausmeier teaches that the data structure is a linked-list
data structure [col. 2, line 9].

12.   As to claims 7 and 19, Klausmeier teaches that the data structure is a queue [col.
2, line 12].

13.   As to claims 6, 8, 18, and 20, they are rejected for the same reasons as claims 2
and 14 above.

14.   As to claims 29 and 31, Klausmeier as modified teaches the order is a round robin order among each of the plurality of sub-data structures [p. 2, paragraph 0025 of Dagli].

15.   As to claims 30 and 32, Klausmeier teaches the distributor includes a counter to identifying the order [col. 12, line 30 – 63].

16.   As to claims 21 and 25, Klausmeier as modified teaches a system for storing information in a data structure, the data structure including a plurality of linked list data structures [col. 2, line 26 of Klausmeier], the system comprising:

        a head address storage for storing head information for each of the plurality of linked list data structures [704, Fig. 7 of Klausmeier];

        a head selector for selecting between said head information [904, Fig. 9 of Klausmeier];

        a tail address storage for storing tail information for each of the plurality of linked list data structures [706, Fig. 7 of Klausmeier];

        a tail selector for selecting between said tail list information [917, Fig. 9 of Klausmeier]; and

        a memory for storing a plurality of elements of said information added to the data structure [622, Fig. 7 of Klausmeier];

        wherein the plurality of elements are distributed to the plurality linked list data structures in an order [p. 3, paragraph 0032 of Dagli] and the elements are removed from the plurality of linked list data structures in the order [p. 4, paragraph 0047 of Dagli], the distributing adds no two consecutive elements of the plurality of elements in the order to the same one of the linked list data structures [p. 5, paragraph 0051 of Dagli].

17.   As to claims 22 and 26, these are rejected for the same reasons as claims 21 and 25 above. As to the additional limitations, Klausmeier teaches a data structure selector mechanism for selecting between the plurality of data structures [col. 9, line 45].

18.   As to claims 23 and 27, Klausmeier as modified teaches a method for adding a
plurality of elements to a data structure, the data structure comprising a plurality of sub-
data structures, the method comprising:

        (a) receiving information to be added to the data structure ["DATA INPUT" Fig. 6
of Klausmeier];

        (b) adding said received information to a currently selected one of the plurality of
sub-data structures to which to add information [807, Fig. 8 of Klausmeier];

        (c) advancing the currently selected one of the plurality of sub-data structures to
which to add information in a predetermined order independent of the received
information [provided information regarding which queue to place the data from another
apparatus; p. 3, paragraph 0029 of Dagli];

        (d) removing information from a currently selected one of the plurality of sub-data
structures to which to remove information [col. 10, line 13 of Klausmeier];

        (e) advancing the currently selected one of the plurality of sub-data structures to
which to remove information to a next one of the plurality of sub-data structures to which
to removed information in the predetermined order [p. 4, paragraph 0047 of Dagli]; and

        repeatedly performing steps (a)-(c) to add information to the data structure and
steps (d)-(e) to remove information from the data structure [col. 6, lines 44-45 and col.9,
lines 25-26 of Klausmeier].

19.   As to claims 24 and 28, these are rejected for similar reasons as claim 23 and 27
above. As to the additional limitations, Klausmeier further teaches identifying one of the
plurality of data structures to which to add the received information [col. 7, line 51], and
identifying one of the plurality of data structures to which to remove a piece of stored
information [904, Fig. 9].

20.   As to claim 33, Klausmeier as modified teaches a queue [cell memory 622; col.
4, lines 45 – 60 of Klausmeier] for storing items of a stream of information with said
items received in a particular order [order of entries in each linked list in queue array
708 that is associated with a given connection indicates the order in which the cells in

the corresponding blocks were received; col. 5, lines 34 – 48 of Klausmeier], the queue comprising:

a plurality of sub-queues [one queue for each connection. These queues may be implemented through special memory components, such as FIFOs; col. 4, lines 45 – 60 of Klausmeier];

an enqueue distributor configured to receive said items of the stream of information in said particular order [order of entries in each linked list in queue array 708 that is associated with a given connection indicates the order in which the cells in the corresponding blocks were received; col. 5, lines 34 – 48 of Klausmeier], and configured to distribute said items to the plurality of sub-queues in a predetermined order such that each of said items are only stored in a single one of the plurality of sub-queues [linked list associated with connection 0 includes entries 750, 753, 759, and 756, in that order. Thus, the queue for connection 0 includes blocks 765, 768, 774, and 771, in that order. The linked list associated with connection 1 includes entries 758, 760, and 755, in that order; col. 6, lines 43 – 63 of Klausmeier]; and

a dequeue receiver configured to only receive said items of the stream of information from the plurality of queues in the predetermined order and to forward said items in said particular order [retrieve the queue data from memory 220 in the same order as it was received; p. 4, paragraph 0047 of Dagli].

21.   As to claim 34, Klausmeier as modified teaches the items correspond to packets [p. 3, paragraph 0029 of Dagli].

Conclusion

22.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.
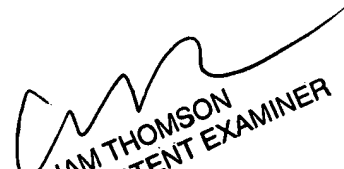
CONTACT INFORMATION

23.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li B. Zhen whose telephone number is (571) 272-3768. The examiner can normally be reached on Mon - Fri, 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Thomson can be reached on 571-272-3718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Li B. Zhen
Examiner
Art Unit 2194

lbz

WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER